

distributor continues until all users have been checked and verified, as represented by decision block 388. As each container file for a specific user is identified and determined to be from a document distributor, a running total of resources used by each document distributor is maintained. Following analysis of all users, a total for the number of documents delivered, the number of container files delivered, and/or the total storage usage by each document distributor, *i.e.*, the total storage used by all documents delivered and all containers delivered to other users by the document distributor, is calculated as represented by block 390. Subsequently, a bill can be prepared, as represented by block 392, based upon the resources allocated to the document distributor and excluded from the users.

The present invention can be embodied in other specific forms without departing from its spirit or essential characteristics. The described embodiments are to be considered in all respects only as illustrative and not restrictive. The scope of the invention is, therefore, indicated by the appended claims rather than by the foregoing description. All changes which come within the meaning and range of equivalency of the claims are to be embraced within their scope.

What is claimed and desired to be secured by United States Letters Patent is:

1           1.       A method for tracking the allocation of resources within a document storage  
2 repository including a user account having a user storage total and a document distributor  
3 account having a document distributor storage total, the method comprising:

4                   identifying a user account containing a document, the document comprising  
5 an attribute that defines an author of the document as a document distributor or a  
6 general user, and a storage amount defining the amount of the document storage  
7 repository used by the document;

8                   analyzing the document to determine whether the attribute defines the  
9 author of the document as either a document distributor or a general user; and

10                  in the event that the document distributor is the author, excluding the  
11 storage amount associated with the document from a user storage total and  
12 including the storage amount in a document distributor storage total.

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14           2.       A method as recited in claim 1, wherein the user account comprises at least  
15 one container file.

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17           3.       A method as recited in claim 1, wherein the document comprises a free  
18 storage attribute that identifies whether the storage amount is to be included or excluded  
19 from the user storage total.

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21           4.       A method as recited in claim 1, wherein the attribute comprises either a true  
22 value or a false value.

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1           5.       A method as recited in claim 1, wherein the attribute comprises a pointer to  
2 a list of user properties, the user properties comprising a document distributor attribute  
3 identifying a user as either a document distributor or a general user.  
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5           6.       A method as recited in claim 5, wherein the inclusion of the document  
6 distributor attribute in the user properties identifies the user as a document distributor.  
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8           7.       A method as recited in claim 1, further comprising calculating the document  
9 distributor storage total for the document distributor.  
10

11          8.       A method as recited in claim 1, further comprising:  
12               identifying a user account for each user having a user account within the  
13 document storage repository;  
14               analyzing each document stored within each user account to determine  
15 whether an attribute defines the author of each document as either the document  
16 distributor or the general user; and  
17               calculating the document distributor storage total based upon substantially  
18 all the user accounts and substantially all the documents.  
19

20          9.       A method as recited in claim 1, wherein the user account comprises at least  
21 one container file comprising at least one document.  
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1           10.     A method as recited in claim 9, wherein the container file comprises a  
2 container attribute that defines the author of the container file and the at least one  
3 document.

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5           11.     A method as recited in claim 10 further comprising:  
6                 identifying a user account for each user having a user account within the  
7 document storage repository;  
8                 analyzing each container file stored within each user account to determine  
9 whether the container attribute defines the author of the container file and the at  
10 least one document stored therein as either the document distributor or the general  
11 user; and  
12                 calculating the document distributor storage total based upon substantially  
13 all the user accounts and substantially all the container files.

1 12. A method for tracking the allocation of resources of at least one container  
2 file associated with at least one user and determining a storage total for the at least one  
3 user, the method comprising:

4 identifying at least one container file that includes at least one document,  
5 the at least one container file comprising an attribute defining authorship of the at  
6 least one container file, and a storage amount defining the size of the at least one  
7 container file and the at least one document;

8 analyzing the at least one container file to determine whether the attribute is  
9 either a first entry or a second entry, the second entry indicating that the at least one  
10 container file is authored by a document distributor; and

11 in the event that the attribute is set to the second entry, excluding the  
12 storage total associated with the at least one container file in the storage total  
13 associated with the user.

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15 13. A method as recited in claim 12, wherein in the event that the attribute is set  
16 to the first entry, including the storage total associated with the at least one container file in  
17 a storage total associated with the user.

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19 14. A method as recited in claim 12, wherein the attribute defines the  
20 authorship of the at least one container file and the at least one document stored therein.

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22 15. A method as recited in claim 12, wherein an at least one document attribute  
23 defines the authorship for the at least one document.  
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1           16.     A method as recited in claim 12, wherein the first entry is a false value and  
2 the second entry is a true value.

3  
4           17.     A method as recited in claim 12, wherein the second entry is a pointer to a  
5 stored document distributor attribute, the document distributor attribute designating the  
6 user as a document distributor.

7  
8           18.     A method as recited in claim 12, wherein the first entry is zero.

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10          19.     A method as recited in claim 12, further comprising:  
11                 identifying a user account within a document storage repository for at least  
12 one user, each user account comprising at least one container file;  
13                 analyzing the at least one container file stored within each user account to  
14 determine whether each attribute comprises the first entry or the second entry; and  
15                 calculating a document distributor storage total based upon substantially all  
16 the user accounts and substantially all the container files.

1           20.    A method for tracking a storage total representative of the amount of  
2 storage within a data repository used by a document distributor, the method comprising:

3                   identifying at least one container file in a data repository associated with a  
4 user, the at least one container file comprising a plurality of documents, each of the  
5 plurality of documents comprising:

6                           an attribute defining the author of the document as either a  
7 document distributor or a general user; and

8                           a storage value defining the size of the document;

9                   analyzing each of the plurality of documents to identify which of the  
10 plurality of documents is authored by a document distributor; and

11                   calculating a storage total for the document distributor by summing the  
12 storage total for each document of the plurality of documents within each container  
13 file that is authored by the document distributor.

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15           21.    A method as recited in claim 20, wherein at least one container file is stored  
16 within a plurality of user accounts associated with a plurality of users.

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18           22.    A method as recited in claim 21, wherein the step of analyzing comprises  
19 analyzing each of the plurality of documents within each of the plurality of user accounts.

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21           23.    A method as recited in claim 20, wherein the step of analyzing comprises  
22 analyzing a set of document properties associated with each of the plurality of documents,  
23 the set of document properties comprising a free storage attribute.  
24

1           24.     A method as recited in claim 20, wherein the step of analyzing comprises  
2 analyzing a set of container properties associated with the at least one container file, the set  
3 of container properties comprising a free storage attribute.

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5           25.     A method as recited in claim 24, wherein the at least one container file  
6 comprises a container storage total.

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8           26.     A method as recited in claim 25, wherein the step of calculating comprises  
9 summing each container storage total for each container file having the free storage  
10 attribute.

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12           27.     A method as recited in claim 25, wherein the step of calculating comprises  
13 summing the number of container files comprising the free storage attribute.

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15           28.     A method as recited in claim 20, wherein the attribute is a free storage  
16 attribute.

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18           29.     A method as recited in claim 27, wherein the step of calculating comprises  
19 summing the number of the plurality of documents comprising a free storage attribute.  
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1           30.     A computer program product for implementing, in a system that includes at  
2 least one processor and a data repository, a method for tracking a storage total  
3 representative of the amount of storage within the data repository used by a document  
4 distributor, the computer program product comprising:

5                 a computer readable medium carrying computer-executable instructions for  
6 implementing the method, wherein the computer-executable instructions, when  
7 executed by the processor, cause the system to perform the acts of:

8                     identifying at least one container file in the data repository  
9 associated with a user, the at least one container file comprising a plurality  
10 of documents, each of the plurality of documents comprising:

11                         an attribute defining the author of the document as either a  
12 document distributor or a general user; and

13                         a storage value defining the size of the document;

14                         analyzing each of the plurality of documents to identify which of the  
15 plurality of documents is authored by a document distributor; and

16                         calculating a storage total for the document distributor by summing  
17 the storage total for each document of the plurality of documents within  
18 each container file that is authored by the document distributor.

1           31.     A computer program product for implementing, in a system that includes at  
2 least one processor and a data repository, a method for tracking the allocation of resources  
3 within a document storage repository containing a user account having a user storage total  
4 and a document distributor account having a document distributor storage total, the  
5 computer program product comprising:

6                     a computer readable medium carrying computer-executable instructions for  
7 implementing the method, wherein the computer-executable instructions, when  
8 executed by the processor, cause the system to perform the acts of:

9                             identifying a user account containing a document, the document  
10 comprising an attribute that defines an author of the document as a  
11 document distributor or a general user, and a storage amount defining the  
12 amount of the document storage repository used by the document;

13                            analyzing the document to determine whether the attribute defines  
14 the author of the document as either a document distributor or a general  
15 user; and

16                            in the event that the document distributor is the author, excluding  
17 the storage amount associated with the document from a user storage total  
18 and including the storage amount in a document distributor storage total.

1           32.     A computer program product for implementing, in a system that includes a  
2 processor and a data repository, a method for tracking the allocation of resources within a  
3 document storage repository containing a user account having a user storage total and a  
4 document distributor account having a document distributor storage total, the computer  
5 program product comprising:

6                     a computer readable medium carrying computer-executable instructions for  
7 implementing the method, wherein the computer-executable instructions comprise:

8                             program code means for identifying a user account containing a  
9 document, the document comprising an attribute that defines an author of  
10 the document as a document distributor or a general user, and a storage  
11 amount defining the amount of the document storage repository used by the  
12 document;

13                            program code means for analyzing the document to determine  
14 whether the attribute defines the author of the document as either a  
15 document distributor or a general user; and

16                            in the event that the document distributor is the author, program  
17 code means for excluding the storage amount associated with the document  
18 from a user storage total and including the storage amount in a document  
19 distributor storage total.  
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1 33. A computer-readable medium having a plurality of data fields stored on the  
2 medium and representing a data structure comprising:

3 a first data field containing data representative of at least one of a container  
4 file and a document;

5 a second data field derived from the first data field by identifying an author  
6 of at least one of the container file and the document;

7 a third data field derived from the first data field by calculating a storage  
8 size of at least one of the container file and the document; and

9 a forth data field functioning to identify the author of at least one of the  
10 container file and the document as either a document distributor or a general user,  
11 wherein in the event that the forth data field identifies the author as the document  
12 distributor, adding the storage size of at least one of the container file and the  
13 document to the storage total of the document distributor.